ABSTRACT

The present invention includes a smart vocoder which selects an optimal vocoder algorithm for encoding a communication. The selection is based on at least one of the following criteria: a) minimizing bandwidth required to transmit the communication; b) minimizing a cost of transmitting the communication; c) increasing the quality of the communication; d) achieving compatibility with a receiving terminal; and e) reducing latency. The selection of the optimal vocoder algorithm occurs during the call setup. The smart vocoder can select a low bit rate vocoder algorithm if bandwidth is scarce. The smart vocoder can also select a vocoder algorithm which allows the call to be routed over a low cost network. A lossless compressor can be used to compress the encoded communication signal, creating extra bandwidth for the insert of error correction bits. The smart vocoder can be incorporated into a DSP or one or more ASICs.